AN ANALYSIS OF THE RELATIONSHIP BETWEEN WORKPLACE FACTORS AND WORK-LIFE BALANCE FOR RESEARCH ADMINISTRATORS

by
Lisa E. Costan

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Abstract

Workplace stress can be brought on by a number of factors and is typically found in occupations where individuals are exposed to intense circumstances. Professions commonly associated with high levels of stress include social work, law enforcement, and healthcare. This research study examines the profession of research administration, also labeled a high-stress occupation. This is believed to be the first study of its kind to make a direct assessment of change in work-life balance for research administrators. The aim of this study was to determine whether five independent variables could be used to predict the dependent variable change in work-life balance: 1) change in workload, 2) change in work intensity, 3) change in availability expectations, 4) change in customer service expectations, and 5) change in institutional culture. An anonymous online survey was distributed by email to almost 2,000 research administrators with a success rate of 18%. Changes in workload, work intensity, availability expectations, customer service expectations, institutional culture, and work-life balance were reported using a 5-point Likert scale. In addition, research administrators were also asked to rate their current work-life balance. An analysis of the results found that change in availability expectations to be available during non-regular work hours was the only variable to meet statistical significance with a P-value of 0.018 ($\alpha = 0.05$). All other factors, initially believed to be drivers of work-life balance based on a review of the literature, were not found to predict change in work-life balance for research administrators. Other findings showed that 82% of research administrators are experiencing an increase in their

workloads. Eighty percent reported that their work intensity is increasing and 66% reported that expectations to provide high-level customer service are increasing. Yet, these increases were not found to impact the work-life balance of research administrators as a whole. Seventy percent of research administrators reported that their change in work-life balance has either stayed the same or improved. Seventy-three percent of research administrators reported their current work-life balance as acceptable, good or very good.

Primary Reader and Advisor: Jeffrey Kantor

Secondary Reader: Marianne Woods

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Chapter I.

Introduction

Academic research institutions in the United States continue to struggle financially. The previous decade began with a downturn in the economy in late 2007. Universities and research institutions were forced to accept devastating losses to their financial assets. In turn, they responded by cutting budgets, reducing staff and implementing hiring freezes. The Great Recession ended in 2009 and the economy began to recover. 2011 marked an all-time high in federal funding of research and development (R&D) expenditures for higher education. However, this was soon followed by downward trend that would last four consecutive years. Reports show that federal R&D funding has increased only slightly since 2015. The flattening out of federal funding has resulted in fierce competition for federal dollars where demand greatly exceeds supply.

Today's research administrators are being challenged to handle more responsibilities with fewer resources. Many research administrators are reporting high levels of work stress (Shambrook, Owens,& Jahani, 2015) and this has called into question the work-life balance of research administrators. Work-life balance and stress go hand in hand (Razak, Yusof, Azidin, Latif & Ismail, 2015) . Therefore, reducing work-related stress is key to achieving a healthy work-life balance. Stress which is not managed not only impairs work-life balance but can cause serious health problems such heart disease, high blood pressure, and diabetes.

There are a growing number of work-life balance studies being conducted all over the world covering a broad range of professions. These have examined work environment stressors and their impact on work-life balance and other related outcomes such as job satisfaction and quality of life. Findings show that job-related stressors such as work hours, workload, and work intensity are a but a few of the major determinants of work-life balance (Burke, Koyuncu, Fiksenbaum & Acar, 2009; Devadoss & Minnie, 2014; Razak, et al., 2015). To date, three consecutive studies have focused exclusively on the profession of research administration (Shambrook & Brawman-Mintzer, 2007; Shambrook, 2012; Shambrook, et al., 2015). The authors report consistent and significant associations between high levels of work stress and work-life balance. They assert that those with high levels of work stress experience poor work-life balance.

However, this previous research does not directly measure the work-life balance of research administrators because it does not ask research administrators to rate their work-life balance. Instead, it asks participants how many hours per week they work and whether their work demands interfere with home and family life. Work-life balance inferences are made based on participant responses. But there may be other influencing factors at work. It has been found that long work hours may be interpreted positively or negatively depending on the individual, and any interference between home and family life may be negated by such factors as financial benefits, career advancement, and job satisfaction (Vatharkar, 2017). Ultimately, whether one has an acceptable level of work-life balance is purely subjective and is up to the individual. Furthermore, the previous research has not effectively measured changes in the work-life balance of research administrators over time. This research seeks to build upon the existing knowledge.

The aim of this study was to find predictors that influence change in the work-life balance of research administrators working at research institutions in the United States. Five factors believed to contribute to change in work-life balance were identified based on a review of the literature. Therefore, this research proposed that:

H_1 If workload is increasing, work-life balance will be decreasing.

H_2 If work intensity is increasing, work-life balance will be decreasing.

H_3 If expectations for work availability are increasing, work-life balance will be decreasing.

H_4 If expectations to provide high customer service standards are increasing, work-life balance will be decreasing.

H_5 If institutional culture to promote work-life balance is increasing, work-life balance will be increasing.

This study is unique in that it makes no assumptions about the work-life balance of research administrators. Factors which may negatively impact work-life balance for some individuals, may not be applicable to others. This study is believed to be the first of its kind because it directly assesses the change in work-life balance of research administrators by explicitly asking, " Has your work-life balance changed?"

Chapter II.

Literature Review

What Is Work-Life Balance?

The 2017 Gallup survey, State of The American Workplace, revealed that 53% of American employees say a role that allows them to have greater work-life balance and better personal well-being is "very important" to them. The concept of "work-life balance" continues to gain popularity, but what does it mean? The answer is different depending on who you ask. There is no "one size fits all" definition of work-life balance. As noted by Kalliath & Brough (2008), "although the term work–family/life balance is widely employed, an agreed definition of this term has proved elusive". For purposes of this research project, "Work-life Balance" is defined as the balance that an individual needs between time allocated for work and other aspects of life, e.g., personal interests and family and social or leisure activities (Wikipedia). An examination of the literature presented by Zedeck & Mosier (1990) shows there are five agreed upon traditional models of work-life balance that are useful in understanding the different theories of the relationship between work and life outside work.

Spillover Theory.

Spillover theory asserts there is a carryover of workplace events into the non-work environment which creates similarity in the patterning between what occurs in the work environment and what occurs at home (Staines, 1980). It predicts a positive correlation between involvement in the work role and the involvement in the non-work role(s). For example, contentment at work leads to contentment at home. Staines theory is

cross-directional such that one's personal life events can spill over and affect work. Spillover as described by Staines (1980) generally refers to its positive effects but negative spillover can also occur. Job stressors may negatively impact positive family interactions when family members must use their personal resources to assist the worker to manage the stress.

Compensation Theory.

Compensation theory is a direct rival of the spillover theory according to Staines (1980) and is based on an inverse relationship between work and home (Piotrkowski, 1979). It asserts that where work does not provide fulfillment, fulfillment will be sought through non-work activities such as family and leisure. Piotrkowski is known for saying that employees "look to their homes as havens, [and] look to their families as sources of satisfaction lacking in the occupational sphere". In other words, what may be lacking in one sphere, can be made up in the other (Guest, 2002).

Instrumental Theory.

Instrumental theory suggests that the work environment is a means by which things are obtained for use in the alternate environment. (Evans & Bartolome, 1984; Payton-Miyazaki & Brayfield, 1976). In this model, work is an activity which is engaged in for the sole purpose of providing resources for the enjoyment of life without regard to one's job or career satisfaction. Guest (2002) provides a traditional example of an instrumental worker who will seek to maximize earnings, even at the price of undertaking a routine job and working long hours, to allow the purchase of a home or a car for a young family.

Conflict Theory.

Conflict theory says that satisfaction or success in one environment requires sacrifices in the other. These two environments are incompatible because they have distinct norms and requirements (Evans & Bartolome, 1984; Greenhaus & Beutell, 1985; Payton-Miyazaki & Brayfield, 1976). This theory proposes that with high levels of demand in both work and non-work spheres, hard choices may have to be made which can lead to role conflict and role overload .

Segmentation Theory.

The segmentation theory hypothesizes that work and non-work are two distinct domains of life that are completely separate. That is, one does not affect the other in any way. Segmentation theory is one of the earliest views of the work-family relationship and dates back to 1960 (Blood &Wolfe, 1960). Blood and Wolfe, pioneers of this perspective, applied the concept to blue collar workers. They believed that workers in unsatisfying jobs would naturally separate work and home. However, this theory has long since been discounted due to Piotrkowski's (1978) seminal work on systems of work and family life. It validated what other researchers had long proposed, that work and family are not separate without mutual effect and influence on each other.

According to Guest (2002), there is growing interest in the conflict model, especially in dual-career families, although research on spillover and compensation models continue to be widely reported. The five dominant models of the relationships between work life and home life provide some useful insights into the differing perspectives of the meaning of work-life balance. These models serve as guides for researchers to ask questions about the causes of work-life balance difficulties and to

examine their impact on the well-being of one's self and family. Only when these causes are known, can strategies be developed and implemented to improve and maintain the work-life balance of workers.

Origination Of Work-Life Balance

The term "Work-Life Balance" is relatively recent in origin. It was first used in the United Kingdom and United States in the late 1970s and 1980s, respectively. However, 1986 marks the marks the first published appearance of the term in the United States, (work and life balance) in the journal Industry Week from the article "Time to Diversity Your 'Life Portfolio'?" by Tom Brown. The concept of work-life balance is believed to have originated as early as the 1800s in agricultural work. In 1874, the state of Massachusetts, known for its role as a labor law pioneer, enacted a law which limited the amount of time that women and children could work to a ten-hour day (Nutter, 2014). Later, the emphasis turned to industrial work during the turn of the 20th century. In 1980, the United States government started tracking workers' hours and found that manufacturing employees worked a backbreaking 100 hours each week. With the help of Ford Motor Companies, the eight-hour work day was passed by Congress in 1926 (Ward, 2017). A major turning point in the promotion of work-life balance policies offered by employers today was women entering the workforce. In the 1970s, large numbers of women began to re-enter the workforce because the "single-income household could no longer support a comfortable, middle-class lifestyle" (Baig, 2013). Women advocated for flexible schedules and maternity leave and brought work–life balance issues to the forefront. Today, work-life balance is an issue that affects both men and women and is driven by a set of diverse factors.

The Nature Of Work Has Changed

The nature of work has changed in recent decades due to industrial restructuring, technological advancements, economic recessions and intensified global competition. In many cases, employees are expected to take on additional roles and responsibilities due to increasing pressure on organizational leaders to reduce expenses. Cost reductions often come in the form of downsizing or not replacing people when they leave the organization. Today's organizations and their employees need to be able to adjust quickly to an ever-changing world and the United States research enterprise is no exception. Changes have meant significant decreases in federal research funding, the life-blood of academic research institutions. In 2014, the National Science Foundation (NSF) reported that federal funding failed to outpace inflation for the third year in a row according to the Higher Education Research and Development Survey (HERD) survey. The HERD survey is the primary source of information on R&D expenditures at United States colleges and universities and is conducted by the National Center for Science and Engineering Statistics within the NSF. Between FY 2013 and 2014, federal funding for academic R&D declined more than 5%, and 11% since its peak in FY 2011. Although NSF reported slight up tics of 1.4% between FY 2015 and FY 2016 and 1.7% between FY 2016 and FY 2017, the flattening out of federal funding has resulted in stiffened competition for federal grants among academic research institutions.

In addition, federal regulatory compliance requirements continue to increase without adequate overhead compensation for the costs of implementing and enforcing new rules and regulations. The HERD survey data showed that unrecovered indirect costs

related to external R&D funding are steadily rising at a rate of 2.5% per year and totaled $5.2 billion in FY 2017. This represents a total increase of 13% since FY 2012.

Academic research institutions must cope with these financial pressures as alternate sources of research funding are sought to bridge the gap. This has put increased strain on institutional leaders to continue to reduce expenses. As a result, many research administration departments have experienced significant reductions in staffing. Work-related stress has become a serious concern for those working in the field of research administration today.

What Is Stress?

Hans Selye, a Hungarian-born scientist, is credited with having first coined the term "stress" in 1936, and defined it as "the non-specific response of the body to any demand for change". According to the American Institute of Stress (AIS), it was apparent to Selye that that most people viewed stress as an unpleasant threat. This prompted Selye to create a new word, "stressor", to distinguish stimulus from response. AIS emphasizes that most definitions of stress are put in a negative light, e.g., "a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilize" and "a state of mental or emotional strain or tension resulting from adverse or very demanding circumstances". However, they note that stress can also be positive when it motivates individuals to accomplish more and this positive aspect should be not be excluded from definitions of stress. Selye called this form of good stress "eustress" to differentiate it from "stress" which tends to be used synonymously with "distress".

The repercussions of routine stress (distress) are commonly known and long-term stress is harmful to health. Or, rather it is how we react to stress that is the real problem (Schneiderman, 2005). According to The National Institutes of Mental Health, "over time, continued strain on your body from routine stress may contribute to serious health problems, such as heart disease, high blood pressure, diabetes, and other illnesses, as well as mental disorders like depression or anxiety". These sentiments are echoed by the American Heart Association, Anxiety and Depression Association of America, and many others.

The Health and Safety Executive (HSE) defines work-related stress "the adverse reaction people have to excessive pressures or other types of demand placed on them". HSE is a government agency responsible for the regulation and enforcement of workplace health, safety and welfare in Great Britain. While a certain level of stress is inherent in one's employment, and it has been established that some stress is good, it is useful to examine some common job stressors to better understand their influence on the work-life balance of research administrators.

Workplace Stressors

Workload.

Workload may well be the number one cause of work-place stress impacting employee work-life balance today as evidenced by work-life balance surveys conducted around the globe. Simply put, workload refers to the "volume of work expected of a person" (Encyclopedia of Behavioral Medicine). According to Wikens (2002), workload can be expressed by the formula: Time required to perform tasks / time available. When the ratio is greater than 1, work or role "overload" has occurred. Work overload may also

refer to the perception that one has too much to do (Leiter & Schaufeli, 1996). Therefore, work overload may be real or perceived. The recession, followed by cutbacks in federal financial support for research has left many research administration departments shorthanded. It is common practice not to replace colleagues that leave the institution and this has contributed to the growth in hefty workloads for research administrators.

Work Intensity.

Working hard can be thought of as having both a time component and an intensity component according to Burke, et al. (2009). They point out that work intensity is closely linked to effort and can be used to describe the intensity of effort put forth during the hours worked. Green (2001) described work effort as the rate of physical and mental energy put forth during the work day. Intensity may be measured through subjective responses to questions about the proportion of time spent working at very high speeds and to tight deadlines (Guest, 2002). Research administrators, especially those that work in pre-award, know well the amount of effort and mental energy it takes to prepare and submit grant proposals to meet strict sponsor deadlines.

Availability Expectations.

Many employees today report that employers' expectations to be "on call" beyond traditional working hours are increasing and believe advances in technology are to blame. Technology has enabled society to be constantly connected to each other. "With just a click we're readily available on email, social networks, or text messages" (Klosowski, 2012). The ability to engage in work-related communications from any location often leads individuals to feel obligated to respond to work texts and emails, whether or not it

is actually expected (Mazmanian, Yates, & Orlikowski , 2006). Some research institutions offer flexible work arrangements for research administrators. However, caution should be exercised as flexible work boundaries may result in work without boundaries (Leibowitz, 2018).

Customer Service Expectations.

Studies of customer service industries show that customer service employees experience high levels of role stress due to role conflict as identified by Kahn, Wolfe, Quinn, Snoek & Rosenthal (1964). Expectations of the organization and managers stressing operational efficiency may clash with the demands of customers who want problem resolution or satisfaction (de Ruyter, Wetzels, Feinberg, 2001). In the case of research administrators supporting principal investigators, role conflict may come in the form of trying to balance investigator wants and needs with adherence to institutional policies and regulatory guidelines. According to Netemeyer, Maxham, & Pullig, work-family conflicts may have their most pronounced effects in the stressful environment of customer service jobs because customer service employees may "take their jobs home with them" (2005).

Institutional Culture.

Organizations may foster employee work-life balance through policies and practices, such as taking time off work and flexible hours. On the other hand, it may demand and expect long hours and be intolerant of taking time off to deal with commitments and obligations outside of work such as home or family emergencies (Guest, 2002). Organizations which do not promote work-life-balance often have inflexible policies for taking time off putting pressure or stain on the employee in their

ability to manage work-life balance. Employers, including research institutions, must take joint responsibility for the care of their employees to help them maintain a healthy balance between work and life (Kumarasamy, Pangil & Isa, 2015). Kumarasamy et al. found a significant positive relationship between organizational support and work-life balance.

Previous Research Studies On Work-Life Balance

There have been many studies conducted on the work-life balance of workers over the last two decades and interest remains strong. Organizations utilize work-life balance surveys to better understand how they can strengthen employee loyalty and increase productivity. Their research is motivated by the desire to reduce costs associated with absenteeism and employee turnover. Individuals who feel they have good work-life balance work 21% harder than those who do not according to a survey from the Corporate Executive Board, a global research and advisory company representing 80% of Fortune 500 companies at the time. In addition, the report found that 33% were more likely to stay with the organization (Rampton, 2016).

Researchers are also interested in workers' work-life balance. There is a rapidly growing body of research being conducted today which has surveyed the work-life balance of specific employee populations across various countries, governments, industries, and professions. Professions associated with high levels of stress are of particular interest to health researchers due to a number of negative implications associated with stress-related reactions such as high blood pressure, cardiovascular disease, and depression.

The only known published studies on research administrators and work-life balance are the Research Administrators Stress Perception Surveys (RASPerS) conducted by Shambrook, et al. in 2007, 2010, and 2015. The initial study targeted Research Administration Listserv (RESADM-L) members and received more than 600 responses. RESADM-L is a forum supported by Health Research Incorporated which allows industry professionals from universities, hospitals, and government and non-profits to share information with their peers. The primary purpose of the 2007 study was to provoke self-examination as a health promotion tool and is believed to be the first survey to present a detailed characterization of a research administrator's stress perception and health behavior profile (Shambrook & Brawman-Mintzer, 2007). The study focused on a number of factors, including perceived feelings of negligence in other areas of life due to work demands and adequacy of resources to satisfactorily accomplish the job in a 40-hour work week. Forty-five percent of research administrators reported frequent neglect of family and social relationships in order to meet the demands of their jobs and 66% indicated they did not have sufficient resources to complete their job in a 40-hour work-week. Thirty percent reported sufficient resources and 4% reported neither sufficient nor insufficient resources (Shambrook & Brawman-Mintzer, 2007).

The RASPerS study was repeated in 2010 to compare the responses of research administrators with those from the 2007 survey. It surveyed over 1,100 research administrators belonging to the National Council of University Research Administrators (NCURA) and represented nationwide membership. NCURA is an organization of individuals with professional interests in the administration of sponsored programs (research, education and training), primarily at colleges and universities. Fifty-seven

percent of research administrators reported interference of work demands with home and family life. This was a statistically significant increase of 12% in work/family conflict between 2007 (45%) and 2010 according to Shambrook (2012). In addition, the percentage reporting adequate resources to perform their job in a 40-hour work week declined from 30% to 25% between 2007 and 2010. Although the overall percentage of those reporting moderate to extremely high work stress remained relatively unchanged, the study found research administrators reporting extremely high stress rose from 16% in 2007 to 23% in 2010 (Shambrook, 2012).

The 2015 RASPerS survey continued the study to determine if the 2010 increase in high work stress was an anomaly or an indication of an upward trend. It also continued its investigation of the association between high levels of work stress with work-life balance. A notice was distributed to the RESADM-L membership (as it did for the 2007 study) and again more than 600 surveys were completed. The 2015 study findings indicated that interference of work demands with home and family life did not significantly change between 2010 and 2015 (57% and 56%, respectively). Thirty-five percent of research administrators reported adequate resources to perform their jobs within the 40-hour work week. This was an improvement of 10% from the 2010 RASPerS report which reported 25% and a 5% improvement from the 2007 RASPerS report which reported 30%. The 2015 survey also reported a decline in the number of research administrators reporting extremely high work stress. The research conducted by Shambrook et al. shows strong evidence that higher levels of work stress are associated with greater work interference with home and family life and increased work hours. They

concluded that higher levels of work stress are associated with poor work-life balance (Shambrook et al., 2015).

The RASPerS surveys primarily examined work stress levels and their association with the health behaviors of research administrators. In contrast, this current research study is the first to provide an exclusive focus on work-life balance for research administrators. First, it queried research administrators directly as to whether their work-life balance had changed rather than making inferences about work-life balance from a set of two general factors. Second, the study design measured changes in work-life balance within the same population sample to provide more definite information about the cause-and-effect of relationships associated with work-life balance. Lastly, it provided a set of five specific factors found in the present literature to serve as predictors of change in work-life balance for research administrators.

Chapter IV.

Problem Statement

There is strong evidence which shows that the profession of research administration is perceived as stressful career and it is well documented that work-related stress is widely accepted as a major determinant of employee work-life balance. A few previous studies have examined the impact of perceived work stress on the health behavior profile and work/family balance of research administrators, but these have not focused on work-life balance as a direct outcome. To date, there has been no research conducted which has successfully measured the change in work-life balance of research administrators. Any changes or shifts in the work-life balance of research administrators is currently unknown.

Chapter V.

Methodology

A survey instrument was developed specifically for the target population which consisted of self-identified research administrators using Google Forms. Google Forms is a web-based application used to create forms for data collection purposes. The research administrators are members of Collaborate NCURA, a subset of the National Council of Research Administrators (NCURA). Collaborate NCURA is a professional networking platform which allows members to easily interact and communicate online through discussion boards. The survey was submitted to the Homewood IRB at Johns Hopkins University. It was categorized as being exempt from review of the full committee and was approved and assigned protocol number HIRB0000891817440.

Initially, the survey was intended for posting on multiple Collaborate NCURA community forums, of which there are 44 in total. However, further research revealed that a member may belong to as many as seven different communities at the same time. Posting to multiple communities would have created significant overlap and perhaps even violate the Collaborate NCURA Code of Conduct Rules. The Rules state that messages or documents should be posted "only to the most appropriate lists" with a warning not to spam several lists or libraries with the same message. Instead, the questionnaire titled "Work-life Balance in the Research Administration Environment", was distributed via email to individuals listed in the Collaborate NCURA Member Directory. An advanced member search was conducted to capture only those research administrators working in the United States, which is the primary focus of this study. The search was further refined to exclude those who identified their institution type as Consulting/Software or Federal

Government. The search yielded 1,909 potential study participants. Based on low response rates for external surveys of between 10% and 15%, the expectation was to receive a maximum return of 286 (1,909 x 15%) completed surveys (Fryrear, 2015).

The survey was emailed out to the list of targeted members using a Google Forms link to the survey contained in the body of the email. Because the survey was anonymous, it was not possible to tell which members had responded. The questionnaire and recruitment materials are shown in Appendix 1.

The work-life questionnaire consisted of 3 sections:

1. Demographics
    a. Type of current position
    b. Years worked in current position
    c. Organizational unit
    d. Size of research institution (research expenditures)
    e. Gender
    f. Age
2. Changes in Work Environment
    a. Workload
    b. Work intensity
    c. Availability expectations
    d. Customer service expectations
    e. Institutional culture
3. Work-Life Balance
    a. Change in work-life balance

b. Current work-life balance rating

c. Optional opportunity to share comments on work-life balance

Questions were structured using a 5-point Likert Scale for dependent and independent variables.

Table 1. Dependent and Independent Variables

Variables	**Type**
Work-life Balance	Dependent
Workload	Independent
Work Intensity	Independent
Availability Expectations	Independent
Customer Service Expectations	Independent
Institutional Culture	Independent

Table 2. 5-Point Likert Scale

1	2	3	4	5
Decreasing greatly	Decreasing slightly	Staying the same	Increasing slightly	Increasing greatly

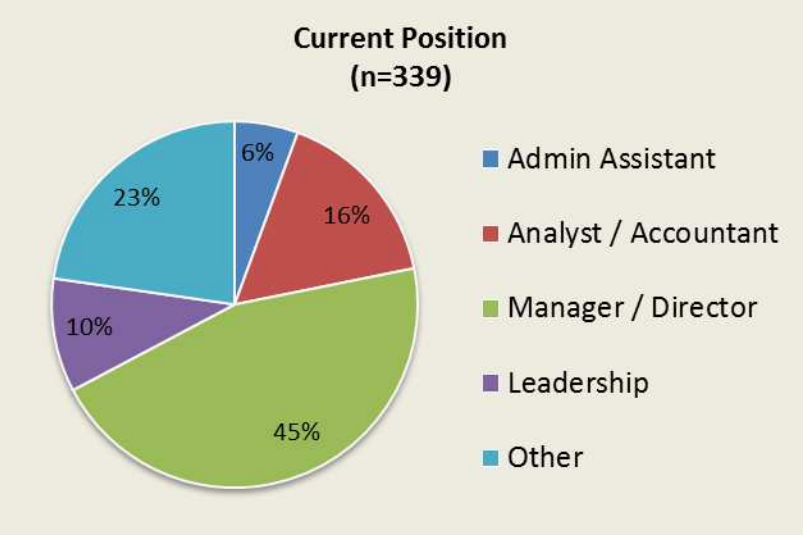
Chapter IV.

Results

Demographic Information

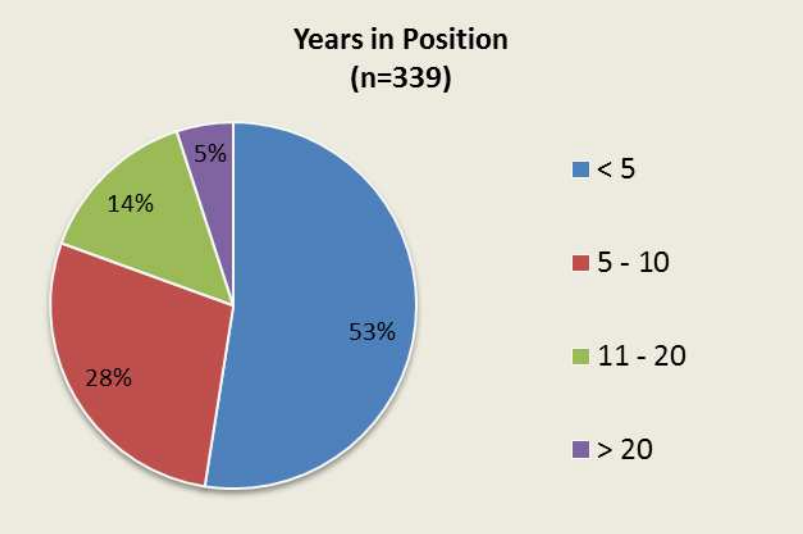
Of the 1,909 surveys emailed to participants, 84 (4.4%) were rejected as undeliverable. A total of 339 participants responded to the survey which represents a response rate of 18%. Research administrators were asked to provide demographic information. The following figures show the demographics of research administrators who completed the Work-life Balance in the Research Administration Environment survey by current position, years in position, organizational unit, size of institution, gender, age and current work-life balance.

Figure 1. Demographics – Current Position



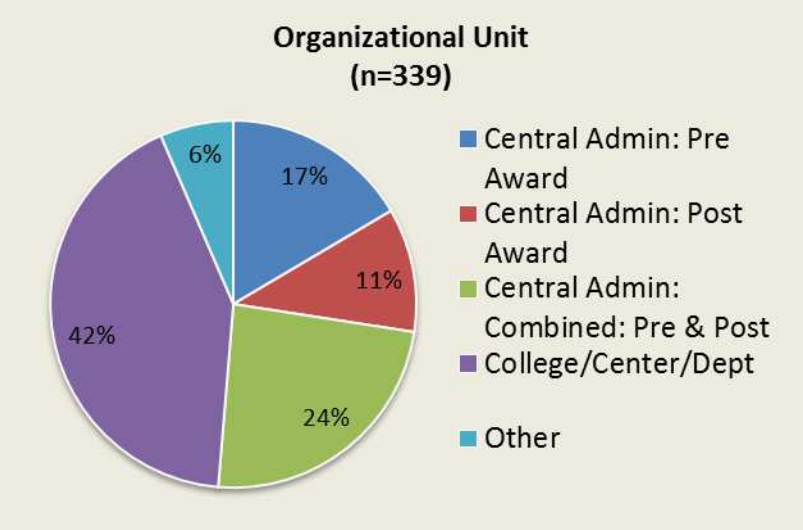
The research findings show that 45% of research administrators are managers and directors followed by analysts/accountants and leadership at 16% and 10%, respectively. 23% reported their current position as Other.

Figure 2. Demographics – Years in Current Position



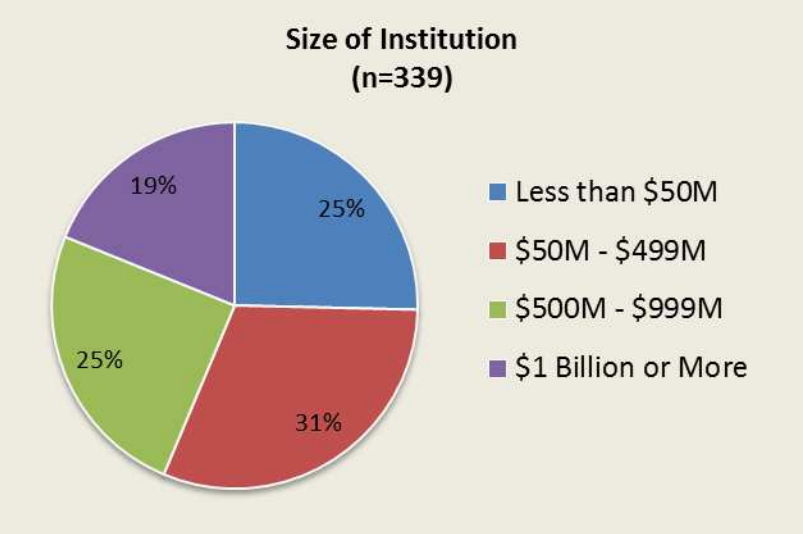
The majority of research administrators (53%) have been in their current job position for less than 5 years. 28% have been in the same position for 5 to 10 years, 14% for 11 to 20 years, and 5% have worked in their current job position for more than 20 years.

Figure 3. Demographics – Organizational Work Unit



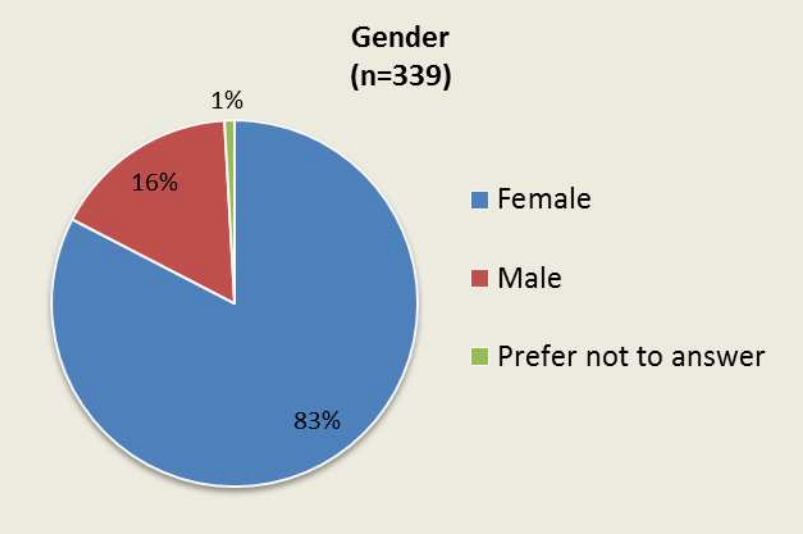
The study found that over half (52%) of research administrators work in central administration units performing pre-award or post-award activities, or both. In contrast, 42% of research administrators are working at the college, center, or department levels. 6% reported their organization unit as Other.

Figure 4. Demographics – Size of Institution in Federal Funding



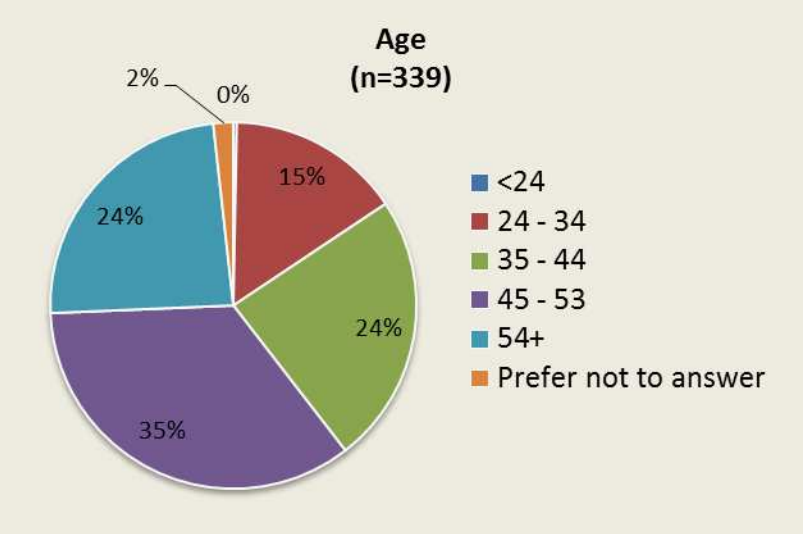
Study findings indicate that research administrators were evenly represented based on the size of their institution which was defined according to the amount of federal dollars they receive for conducting federally-sponsored research.

Figure 5. Demographics – Gender



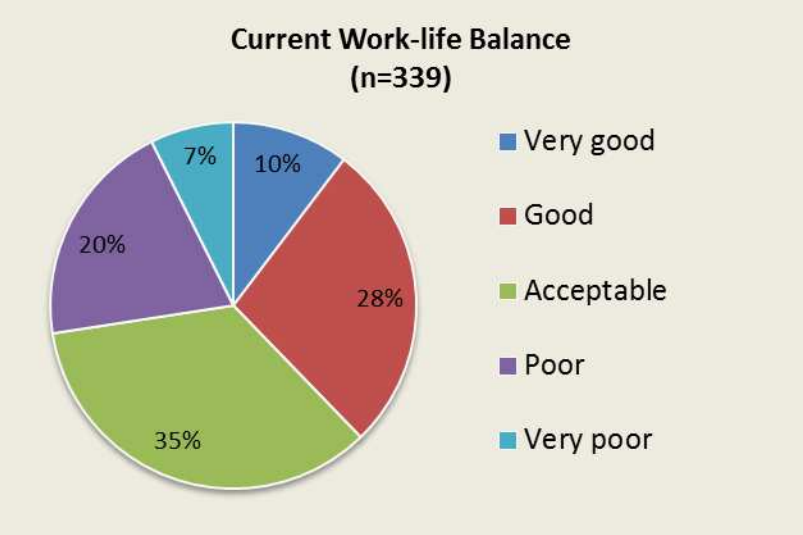
83% of research administrators are female which is consistent with previous studies. Males represented only 16% of research administrators, and 1% declined to answer.

Figure 6. Demographics – Age



The research shows that the age groups of research administrator are well distributed across all categories except for the under 24 group. Only 1 research administrator that responded to the survey was less than 24 years old. 60% of research administrator are age 45 or older. 2% preferred not to answer the question.

Figure 7. Demographics – Current Work-life Balance



73% of research administrators reported they have acceptable to very good work-life balance. 10% reported work-life balance as very good and 28% said their work-life balance was good. The remaining 27% of research administrators reported their work-

life balance as poor or very poor with very poor only accounting for 7% of the total sample.

Data Analysis

Analysis of the data was performed using the statistical program RegressIt. RegressIt is an Excel add-in which performs parametric tests, including multivariate descriptive data analysis and linear regression analysis, with table and chart output in Excel format. One of the primary assumptions of parametric tests such as the t-test, Pearson's correlation, and linear regression is that continuous dependent variables are normally distributed. In a normal distribution, referred to as the "bell curve", most of the data will cluster around the mean. Although Likert data is ordinal and not continuous, parametric techniques have become widely accepted by many for analyzing Likert data because they tend to give the "the right answer" even when the assumptions of a normal distribution are violated (Norman, 2010). While parametric tests can be used to analyze Likert responses, Sullivan & Artino (2013) believe that means are of limited value to describe the data, unless the data has a classic normal distribution.

Testing of the Dependent Variable for Normality

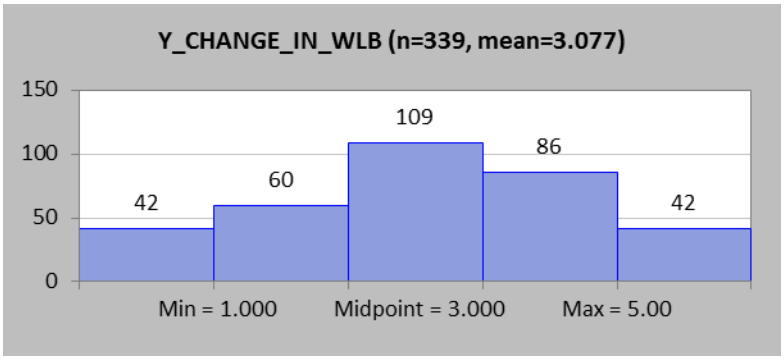
Table 3. Descriptive Statistics

Variable	# Fitted	Mean	Median	Std.Dev.	Min	Max	Skewness	Kurtosis
X1_WORKLOAD	339	4.215	4.000	0.841	1.000	5.000	-0.964	0.686
X3_AVAILABILITY_EXP	339	3.596	3.000	0.838	1.000	5.000	0.270	-0.288
X4_CUSTOMER_SERVICE_EXP	339	3.997	4.000	0.885	1.000	5.000	-0.303	-0.792
X5_INSTITUTIONAL_SUPPORT	339	3.112	3.000	0.900	1.000	5.000	-0.370	0.655
Y_CHANGE_IN_WLB	339	3.077	3.000	1.192	1.000	5.000	-0.149	-0.788

Descriptive statistics were obtained using a statistical model in RegressIt. Table 3 shows that the difference of 0.077 between the mean and median, for the dependent

variable, change in work-life balance, is not material because the mean and median of a normal distribution are equal. Skewness and kurtosis factors are other measures which test for normal distribution. Skewness is a measure of the asymmetry of the distribution of a variable and kurtosis is a measure of the peakedness of a distribution. The z-values of -0.l49 and -0.788, respectively, indicate a near normal distribution. For both measures, a perfectly normal distribution will return a z-value of 0. A negative skew value means that the tail on the left side of the distribution is longer than the right side and the bulk of the values lie to the right of the mean. Figure 8 is a histogram which provides a visual representation of the distribution for Change in Work-life Balance.

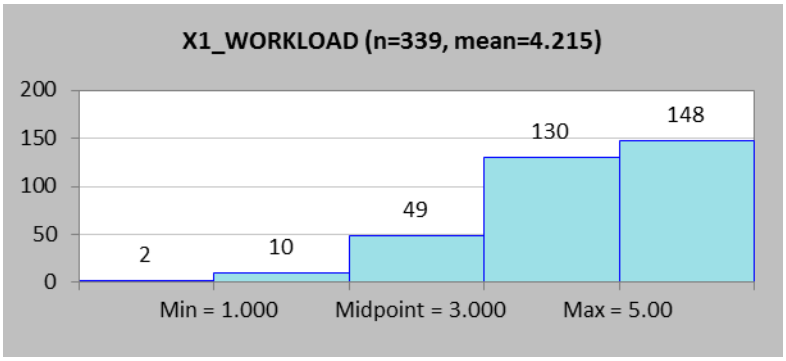
Figure 8. Histogram of Dependent Variable - Change in Work-life Balance.



The histogram shows that the change in work-life balance of research administrators is almost evenly distributed by thirds. 109, or 32%, reported that their work-life balance is staying the same. 30% reported that their work-life balance is decreasing (left) and 38% reported an increase in work-life balance (right).

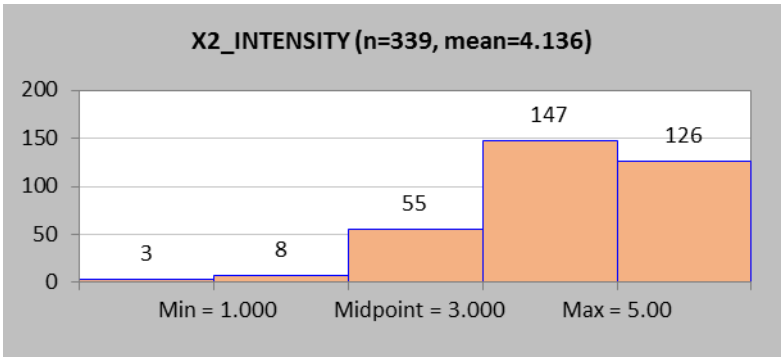
Distribution of the Independent Variables

Figure 9. Histogram of Change in Workload



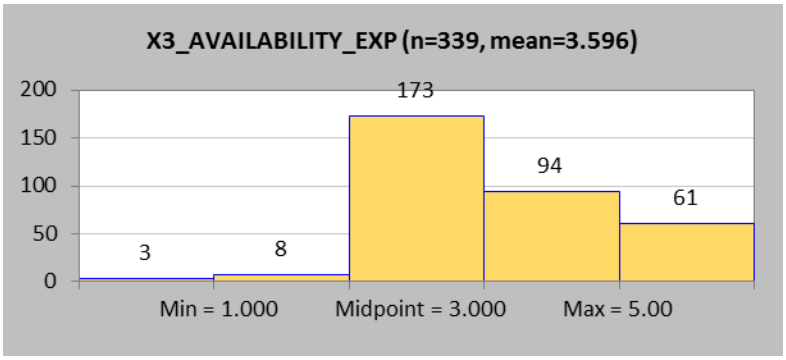
The frequency distribution for Change in Workload shows that 278, or 82% of research administrators reported that their workloads are increasing and more than half of these reported that workloads are greatly increasing. 44% of all research administrators who participated in the survey indicated their workloads have greatly increased.

Figure 10. Histogram of Change in Work Intensity



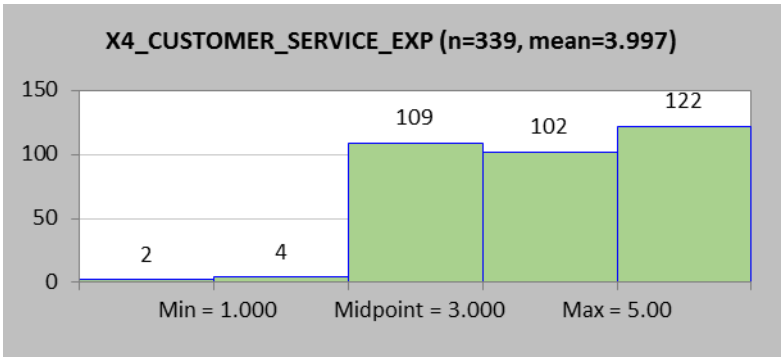
The distribution for Change in Work Intensity indicates there has been a substantial increase in the pace of work performed by research administrators. 80% reported their work intensity has increased. However, more than half of these reported the increase was only slight and 16% reported no change. The 126 research administrators that reported a great increase in work intensity represents more than one third of all respondents.

Figure 11. Histogram of Change in Availability Expectations



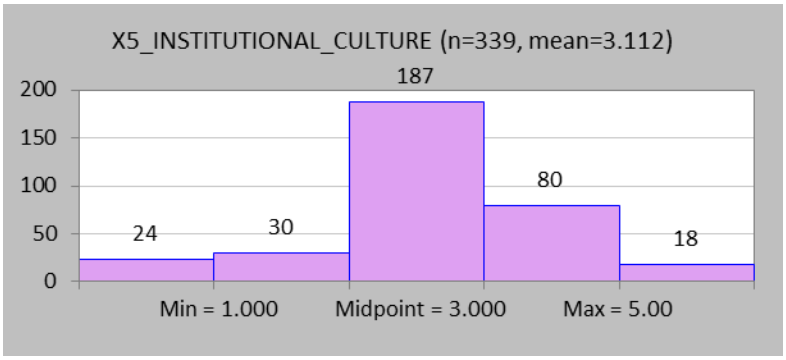
The frequency distribution for Availability Expectations shows that 173 research administrators reported expectations to be available for work during off-hours has stayed the same. This represents just over half at 51%. With the exception of very small group of research administrators (3%) that reported their availability expectations have decreased, the remaining 46% experienced an increase. Approximately 1 out of 5 research administrators reported that availability expectations have greatly increased.

Figure 12. Histogram of Change in Customer Service Expectations



Frequencies for Likert responses Staying the Same, Increasing Slightly, and Increasing Greatly were more or less evenly distributed in response to whether Customer Service Expectations had changed. 66% of research administrators reported that expectations to provide high customer service standards have increased. More than half of these reported customer service expectations had greatly increased.

Figure 13. Histogram of Change in Institutional Culture



187 or 55% of research administrators reported that their institutions' culture to promote work-life balance has stayed the same. 16% reported a decrease in Change in Institutional Culture at their current workplace. At the other end of the scale, 29% reported an increase in their institutions efforts to improve work-life balance for research administrators, although the change was mostly slight (80 v. 18).

Testing of the Regression Model

R-squared

The regression model returned an R-squared value of 0.028. R-squared is a goodness-of-fit measure for linear regression models and indicates the percentage of variance in the dependent variable that the independent variables explain collectively. R-squared is always between 0 and 100%. An R-squared value of 0.028 indicates the regression model only explains 2.8% of the variability of the response data around its mean. A low R-squared still can provide valuable information about the response even though the data points fall further from the regression line, although with less precision. This may be problematic where precise predictions are needed. Generally, the higher the R-squared, the better the study model fits the data. However, even when an R-squared value is low, low p-values correctly identify significant relationships between the individual predictors and the dependent variable (The Minitab Blog, 2014).

F-test

While R-squared provides an estimate of the strength of the relationship between the study model and the response variable, it does not provide a formal hypothesis test for the relationship. The overall F-test determines whether the relationship is statistically significant. An F-test in multiple regression assesses all coefficients simultaneously. The F-test of the overall significance compares a model with no predictors to the study model. A regression model that contains no predictors is also known as an intercept-only model. The two hypotheses for the F-test of the overall significance are:

- Null hypothesis: The fit of the intercept-only model and the study model are equal.
- Alternative hypothesis: The fit of the intercept-only model is significantly reduced compared to the study model.

The initial p-value of 0.090 for the F-test of overall significance was greater than the significance level of 0.05 used for this study. However, when the independent variable, change in work intensity, was removed from the model, its p-value of 0.049 met the test for significance. Coefficient p-values can help to determine which terms to keep in the regression model. Change in work intensity had the highest p-value with a p-value of 0.983. Using the modified model, the null hypothesis was rejected because the relationship between the model and the dependent variable were shown to be statistically significant. It should be noted that the R-squared value of 0.028 did not change using the modified model.

Testing of the Independent Variables

Pearson's Correlation

A correlation matrix is a table which shows the Pearson's correlation coefficient, or Pearson's *r,* between variables. Each cell shows the relationship between two variables. The correlation coefficient *r* measures the strength and direction of a linear relationship between two variables on a scatterplot. The stronger the association, the closer the coefficient *r* will be to -1 and +1.

Table 4. Correlation Matrix

(n=339) Variable	X1_WORKLOAD	X3_AVAILABILITY_EXP	X4_CUSTOMER_SERVICE_EXP	X5_INSTITUTIONAL_CULTURE	Y_CHANGE_IN_WLB
X1_WORKLOAD	1.000				
X3_AVAILABILITY_EXP	0.405	1.000			
X4_CUSTOMER_SERVICE_EXP	0.287	0.381	1.000		
X5_INSTITUTIONAL_CULTURE	-0.067	-0.120	-0.085	1.000	
Y_CHANGE_IN_WLB	0.007	-0.120	0.000	0.102	1.000

The correlation heat map matrix, as shown in Table 4, shows the relationships between the variables by color and color intensity. Blue indicates a positive relationship while red is negatively associated. The darker the color, the stronger the association. All independent variables were found to be weakly correlated with change in work-life balance. However, if a sample size is large enough (>100), a weak correlation is considered reliable and can be statistically significant. Change in availability expectations has the most meaningful relationship with dependent variable change in work-life balance. An *r* value of -0.120 indicates a negative association. That is, as change in availability expectations increases, change in work-life balance decreases. The *r* value of 0.102 for change in institutional culture and change in work-life balance is positively associated. Therefore, when change in institutional culture increases, change in work-life balance also increases. The strongest correlations were found between the independent variable, change in availability, with both change in workload and change in customer

service expectations. R values were 0.405 and 0.381, respectively. In regression analysis this is called "multicollinearity" and refers to predictors that are correlated with other predictors indicating redundancy in the variables.

P-values

Relationships between variables were also assessed for significance by analyzing their p-values. The p-value tells how unlikely a given correlation coefficient *r* will occur given no relationship in the population. In other words, p-values evaluate how well the sample data support the argument that the null hypothesis is true. A small p-value, typically ≤ 0.05, indicates strong evidence against the null hypothesis. P-values were obtained by running the multiple regression model for all independent variables.

Research Hypotheses.

H_1 If workload is increasing, work-life balance will be decreasing.

H_2 If expectations for work availability are increasing, work-life balance will be decreasing.

H_3 If expectations to provide high customer service standards are increasing, work-life balance will be decreasing.

H_4 If institutional culture to promote work-life balance is increasing, work-life balance will be increasing.

Null Hypothesis.

H_0 There is no relationship between the independent variable and change in work-life balance.

Table 5. P-values for Independent Variables

Variable	P-value
Constant	0.000
X1_WORKLOAD	0.309
X3_AVAILABILITY_EXP	0.015
X4_CUSTOMER_SERVICE_EXP	0.413
X5_INSTITUTIONAL_CULTURE	0.091

As shown in Table 5 above, the only variable that successfully met the p-value test criteria of ≤ 0.05 was change in availability expectations with a p-value of 0.015. Therefore, the null hypothesis was rejected and the alternative hypothesis, H_2, was accepted. For all other independent variables, the null hypothesis was not rejected and the alternative hypotheses (H_1, H_3, and H_4) were not accepted. Only change in availability expectations demonstrated a statistically significant relationship with change in work-life balance.

Conclusion

A high degree of multicollinearity was found between the independent variables which created overlap. Although some multicollinearity in multiple regression is allowable, it increases the standard errors of the variables which can make them statistically insignificant when they should be significant. However, it should be noted that when variables with high multicollinearity were removed from the regression model one-at-a-time and re-tested, no additional variables met the p-test for significance. The main finding of the regression analysis was that change in availability is a predictor for change in work-life balance. Although its correlation coefficient was not strong, it was the only independent variable shown to be statistically significant.

The research findings reveal that changes that in workload, work intensity, and customer service expectations are greatly increasing for a significant number of research administrators, but these have no meaningful relationship to their change in work-life balance, as previously believed. In fact, 70% of research administrators self-reported that their work-life balance has either stayed the same or has improved. The current state of research administrators' work-life balance is also informative. Seventy-three percent of research administrators self-reported they have acceptable to very good work-life balance. The research shows that the work-life balance of most research administrators is not decreasing, even though work demands are increasing. This may be due in part to factors such as financial benefits, career advancement, and job satisfaction which have been shown to mediate the relationship between work stress and one's perception of work-life balance. It may also be that many researcher administrators are adept at practicing coping and management strategies which mitigate work stress, thereby allowing them to achieve better work-life balance.

This study contains two main limitations. First, the sample of participants does not fully represent the entire United States population of research administrators. The survey was limited to Collaborate NCURA members, and therefore, it excluded NCURA members which did not join the Collaborate NCURA community. Furthermore, it did not survey members of other professional organizations which also include research administrators, such as the Society of Research Administrators. Second, it is possible that research administrators with poor work-life balance did not have time to take the survey which could have skewed the results.

Through this research, I have discovered that overall research administrators have a fairly healthy work-life balance. The direction of future research will investigate further changes in work-life balance for this group by repeating the survey to identify the existence of any emerging trends. Future research will also examine mediating factors to determine the extent to which these impact the perception of work-life balance for research administrators. It is important to understand how a significant number of research administrators are able to keep their work-life balance in check despite significant increases reported in workload, work intensity, and customer service expectations. This information will be beneficial for those research administrators desiring to maintain or improve their current work-life balance in the high-stress work environment of research administration.

Appendix 1.

Research Survey Questionnaire

Work-life Balance in the Research Administration Environment

* Required

Figure 1. Work-life Balance [Digital Image]. (n.d.) Retrieved from https://www.kissl023.ca/2017/03/03/find-perfect-work-life-balance/

Welcome Fellow Research Administrator,

You are invited to participate in a research study entitled "Work-life Balance in the Research Administration Environment". I am currently enrolled in the Johns Hopkins Research Administration Program and am in the process of writing my Master's Thesis. The purpose of the research is to determine what changes have occurred in the work-life balance of research administrators due to factors in the work environment. For purposes of this project,

"Work-Life Balance" is defined as "the balance that an individual needs between the time allocated for work and other aspects of life" (e.g., personal interests and family and social or leisure activities).

By completing this survey or questionnaire, you are consenting to be in this research study. Your participation is voluntary and you can stop at any time. If you decide to stop, you will not be penalized.

The risks of participation are no greater than ordinarily encountered in the daily lives of the general population or during the performance of routine physical or psychological examinations or tests.

The procedure involves completing an online survey that will take approximately 5 minutes. Your responses will be confidential and your identifying information such as your name, email address or IP address will not be collected.

Your information will be kept confidential. All data is stored in a password protected electronic format. To help protect your confidentiality, the survey will not contain information that will personally identify you. The results of this study will be used for scholarly purposes only and may be shared with Johns Hopkins University representatives.

ELECTRONIC CONSENT: Please select your choice below. Clicking on the "I Agree" button indicates that:

- You have read the above information
- You voluntarily agree to participate
- You are 18 years of age or older

1. *Mark only one oval.*

   ◯ I Agree
   ◯ I Disagree *Stop filling out this form.*

Demographics

2. **Which of the following best describes your current position?** *
   Mark only one oval.

   ◯ Administrative Assistant
   ◯ Analyst / Accountant
   ◯ Manager
   ◯ Director
   ◯ Leadership
   ◯ Other: _____

3. **How many years have you been in this position?** *
   Mark only one oval.

   ◯ < 5
   ◯ 5 - 10
   ◯ 11 - 20
   ◯ > 20
   ◯ Other: _____

4. **Which organizational unit do you currently work in?** *
   Mark only one oval.

   ◯ Central Administration: Pre Award
   ◯ Central Administration: Post Award
   ◯ Central Administration: Combined: Pre & Post Award
   ◯ College/Center/Department Administration
   ◯ Other: _____

5. **What is the size of your institution in research expenditures?** *
   Mark only one oval.

   ◯ Less than $50M
   ◯ $50M - $499M
   ◯ $500M - $999M
   ◯ $1 Billion or More
   ◯ Other: _____

6. **What is your gender?**
Mark only one oval.

- ◯ Female
- ◯ Male
- ◯ Prefer not to answer

7. **What is your age?** *
Mark only one oval.

- ◯ <24
- ◯ 24 - 34
- ◯ 35 - 44
- ◯ 39 - 53
- ◯ 54+
- ◯ Prefer not to answer

The Research Administration Work Environment

8. **How would you describe changes in your workload?** *
Mark only one oval.

- ◯ Decreasing greatly
- ◯ Decreasing slightly
- ◯ Staying the same
- ◯ Increasing slightly
- ◯ Increasing greatly

9. **To what degree is your work intensity (pace of work) changing?** *
Mark only one oval.

- ◯ Decreasing greatly
- ◯ Decreasing slightly
- ◯ Staying the same
- ◯ Increasing slightly
- ◯ Increasing greatly

10. **Have expectations changed concerning your availability (off-hours) for work?** *
Mark only one oval.

- ◯ Decreasing greatly
- ◯ Decreasing slightly
- ◯ Staying the same
- ◯ Increasing slightly
- ◯ Increasing greatly

11. **How would you describe expectations to provide high customer service standards?** *
Mark only one oval.

- ◯ Decreasing greatly
- ◯ Decreasing slightly
- ◯ Staying the same
- ◯ Increasing slightly
- ◯ Increasing greatly

12. **Describe changes in your institution's culture to promote work-life balance.** *
Mark only one oval.

- ◯ Decreasing greatly
- ◯ Decreasing slightly
- ◯ Staying the same
- ◯ Increasing slightly
- ◯ Increasing greatly

Work-life Balance

13. **While in your current position, has your work-life balance changed?** *
Mark only one oval.

- ◯ Decreasing greatly
- ◯ Decreasing slightly
- ◯ Staying the same
- ◯ Increasing slightly
- ◯ Increasing greatly

14. **How do you rate your work-life balance today?** *
Mark only one oval.

- ◯ Very good
- ◯ Good
- ◯ Acceptable
- ◯ Poor
- ◯ Very poor

15. **COMMENTS: Please leave any thoughts you may have on work-life balance here. Thank you!**

_____

_____

_____

_____

_____

Appendix 2.

Recruitment Materials

SURVEY INVITATION EMAIL

Subject Line: THESIS SURVEY: Is Your Work-life Balance Getting Better or Worse?

Body of Post:

Welcome NCURA Collaborate Member!

My name is Lisa Costan and I am inviting you to participate in a research study called "*Work-life Balance in the Research Administration Environment*".

As you well know, a career in Research Administration can be extremely challenging and requires one to continually balance competing priorities. The purpose of this research is to measure the change in work-life balance of research administrators.

Estimated time to complete: approximately 5 minutes. Click on the link and begin the survey now! Link:

Thank you for your contribution to this very important research!

Figure 1. Work-life Balance [Digital Image]. (n.d.) Retrieved from https://www.kiss1023.ca/2017/03/03/find-perfect-work-life-balance/

Appendix 3.

Institutional Review Board Determination Letter

JOHNS HOPKINS
UNIVERSITY

Homewood Institutional Review Board
3400 N. Charles Street
Wyman Park Building, Suite N468
Baltimore MD 21218-2685
410-516-6580
http://homewoodirb.jhu.edu/

Michael McCloskey, PhD
IRB Chair

Date: April 15, 2019

PI Name: Jeffrey Kantor
Study #: HIRB00008918
Study Name: Work-life Balance in the Research Administration Environment

Date of Review: 4/15/2019
Date of Acknowledgement: 4/15/2019
Expiration Date: 4/15/2022

The above referenced study has been *acknowledged.*

Review Type:	Exempt
Funding Agency:	Not funded
Grant or Contract Number:	
International Sites:	No
Maximum number of participants:	286
Vulnerable populations:	None
Consent process:	
Assent Process:	

No changes may be made to the protocol or the consent form without the approval of the Board.

To keep the Homewood IRB files current, we are assigning an expiration date to projects that qualify as not human subjects research or exempt. You will receive an email notification prior to the expiration date shown above, providing guidance to extend this project.

Please keep this message in your files for future reference. Thank you for contacting the Homewood IRB about this research and for providing the requested information to make this determination. Your cooperation is greatly appreciated.

Please keep in mind that it is your responsibility to inform the HIRB of any adverse consequences to participants that occur in the course of the study, as well as any complaints from participants regarding the research. In conducting this research, you are required to follow the requirements listed in the *HIRB Policies and Procedures Manual*.

Approved Documents:

Consent or Assent Materials:
Thesis Questionnaire revised to address risks
Recruitment Materials.docx

Recruiting Materials:
Recruitment Materials WLB.docx

Study Team Members:
Lisa Costan

APPROVAL IS GRANTED UNDER THE TERMS OF FWA00005834 FEDERAL-WIDE ASSURANCE OF COMPLIANCE WITH DHHS REGULATIONS FOR PROTECTION OF HUMAN RESEARCH SUBJECTS

Cited References

A P Muthu Kumarasamy, Mokana, Pangil, F., & Faizal Mohd Isa, M. (2015). Individual, organizational and environmental factors affecting work-life balance. *Asian Social Science,* doi:10.5539/ass.v11n25p111

Baig, M. (2013). "Women in the Workforce: What Changes Have We Made?" *The Huffington Post*. Retrieved from https://www.huffingtonpost.com/mehroz-baig/women-in-the-workforce-wh_b_4462455.html

Blood, R. O., & Wolfe, D. M. (1960). Husbands and Wives. New York: MacMillan, 1960.

Britt, R. (2015). Universities Report Continuing Decline in Federal R&D Funding in FY 2014. InfoBrief NSF 10-329. Arlington, VA: National Science Foundation, Division of Science Resources Statistics. Retrieved from https://www.nsf.gov/statistics/2016/nsf16302/nsf16302.pdf

Brown, T. (1986). Time to diversify your 'life portfolio'? Industry Week. November.

Burke, R. J., Koyuncu, M., Fiksenbaum, L., & Acar, F. T. (2009). Work hours, work intensity, satisfactions and psychological well-being among turkish manufacturing managers. Europe's Journal of Psychology, 5(2), 12. doi:10.5964/ejop.v5i2.264

de Ruyter, K., Wetzels, M., & Feinberg, R. (2001). Role stress in call centers: Its effects on employee performance and satisfaction. Journal of Interactive Marketing, 15(2), 23-35. doi:10.1002/dir.1008.abs

Devadoss, A.V., & Minnie, J.B. (2014). Analyzing the causes of Work Life Imbalance in Working Environment using Induced Fuzzy Cognitive Maps (IFCM). International Journal of Scientific & Engineering Research, Volume 5, Issue 2, February-2014. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.428.9244&rep=rep1&type=pdf

Carifio, J., & Perla, R. (2008). Resolving the 50-year debate around using and misusing likert scales. Medical Education, 42(12), 1150-1152. doi:10.1111/j.1365-2923.2008.03172.x

Evans, P., & Bartolome, F. (1984). The changing pictures of the relationship between career and family.Journal of Occupational Behavior (Pre-1986), 5(1), 9. Retrieved from https://search.proquest.com/docview/227217807

Fryrear, A. (2015). What's a Good Survey Response? Survey Gizmo. Retrieved from https://www.surveygizmo.com/resources/blog/survey-response-rates/

Gallup. (2017). State of the American Workplace. Retrieved from https://www.gallup.com/workplace/238085/state-american-workplace-report-2017.aspx

Green, F. (2001). Its been A hard days night: The concentration and intensification of work in late twentieth-century britain. British Journal of Industrial Relations, 39(1), 53-80. doi:10.1111/1467-8543.00189

Greenhaus, J. H., & Beutell, N. J. (1985). Sources of conflict between work and family roles. Academy of Management Review, 10(1), 76-88. doi:10.5465/AMR.1985.4277352

Guest, D. E. (2002). Perspectives on the study of work-life balance. Social Science Information, 41(2), 255-279. doi:10.1177/0539018402041002005

Health and Safety Executive, Work-related Stress and How to Tackle it. Accessed on http://www.hse.gov.uk/stress/what-to-do.htm

How to Interpret a Regression Model with Low R-squared and Low P values. (2014, June 12. [Blog post]. Retrieved https://blog.minitab.com/blog/adventures-in-statistics-2/how-to-interpret-a-regression-model-with-low-r-squared-and-low-p-values

Jacobs K., Hellman M., Markowitz J., Wuest, E. (2013) Workload. In: Gellman M.D., Turner J.R. (eds) Encyclopedia of Behavioral Medicine. Springer, New York, NY.

Jamieson, S. (2004). Likert scales: How to (ab)use them. Medical Education, 38(12), 1217-1218. doi:10.1111/j.1365-2929.2004.02012.x

Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964). Organizational stress: Studies in role conflict and ambiguity. Oxford, England: John Wiley.

Kalliath, T., & Brough, P. (2008). Work-life balance: A review of the meaning of the balance construct. Journal of Management & Organization, 14(3), 323-327. doi:10.5172/jmo.837.14.3.323

Leibowitz, G. (2018).Those Late Night Work Emails Are Hurting You and Your Family, Says New Research. Inc. Retrieved from https://www.inc.com/glenn-leibowitz/checking-work-email-after-hours-is-harmful-to-employee-health-according-to-new-research.html

Leiter, M. P., & Schaufeli, W. B. (1996). Consistency of the burnout construct across occupations. Anxiety, Stress, & Coping, 9(3), 229-243. doi:10.1080/10615809608249404

Mazmanian, M., Orlikowski, W. J., & Yates, J. (2013). The autonomy paradox. Organization Science, 24(5), 1337-1357. Retrieved from http://www.econis.eu/PPNSET?PPN=770702333

Klosowski, T. (2012). Does Your Employer Expect You to be Always Connected? Retrieved from https://lifehacker.com/does-your-employer-expect-you-to-be-always-connected-5927318

Nahm, F. S. (2016). Nonparametric statistical tests for the continuous data: The basic concept and the practical use. Korean Journal of Anesthesiology, 69(1), 8-14. doi:10.4097/kjae.2016.69.1.8

Netemeyer, R.J., Maxham, J.G., & Pullig, C. (2005). Conflicts in the work-family interface: Links to job stress, customer service employee performance, and customer purchase intent. Journal of Marketing, 69(2), 130-143. doi:10.1509/jmkg.69.2.130.60758

Norman, G. (2010). Likert scales, levels of measurement and the "laws" of statistics. Advances in Health Sciences Education : Theory and Practice, 15(5), 625. doi:10.1007/s10459-010-9222-y

Nutter, K. B. (2014). Women reformers and the limitations of labor politics in massachusetts, 1874-1912. Historical Journal of Massachusetts, 42(1), 80. Retrieved from https://search.proquest.com/docview/1502963313

Payton-Miyazaki, M., & Brayfield, A. H. (1976). The good job and the good life., 125-150. Retrieved from http://www.econis.eu/PPNSET?PPN=481364080

Piotrkowski, C. S. (1979). Work and the family system : A naturalistic study of working-class and lower-middle-class families. United States: Retrieved from http://catalog.hathitrust.org/Record/000694351

Rampton, J. (2016). How Work Life Balance Can Keep Your Employees Happy and Your Business Healthy. Inc.com. Retrieved from https://www.inc.com/john-rampton/how-work-life-balance-can-keep-your-employees-happy-and-your-business-healthy.html

Razak, M., Yusof, N., Azidin, R., Latif, M. & Ismail, I. (2015). International Journal of Economics, Commerce and Management. Vol. II, Issue 11, Nov 2014. Retrieved from http://ijecm.co.uk/wp-content/uploads/2014/11/21145.pdf

Rosenbaum, S.H. (2010). Statistical methods in anesthesia. In: Miller RD, editor. Miller's Anesthesia. 7th ed. Philadelphia: Elsevier Inc. pp. 3075–3086.

Staines, G. L. (1980). Spillover versus compensation: A review of the literature on the relationship between work and nonwork. Human Relations, 33, 111-129.

Schneiderman, N., Ironson, G., & Siegel, S. D. (2005). Stress and health: Psychological, behavioral, and biological determinants. Annual Review of Clinical Psychology, 1(1), 607-628. doi:10.1146/annurev.clinpsy.1.102803.144141

Shambrook, J., Owens, J. & Jahani, S. (2015). Paper presented at the meeting of the Society of Research Administrators International Symposium.

Shambrook, J. (2012). Comparison of stress-related factors in the 2007 and 2010 research administrator stress perception surveys (RASPerS). Journal of Research Administration, 43(2), 107. Retrieved from https://search.proquest.com/docview/1285244083

Shambrook, J. & Brawman-Mintzer, O. (2007). Research Administrator Stress Perception Survey RASPerS). Research Management Review, 15 (2), 41-52.

Staines, G. L. (1980). Spillover versus compensation: A review of the literature on the relationship between work and nonwork. Human Relations, 33(2), 111-129. doi:10.1177/001872678003300203

Sullivan, G. M., & Artino, J., Anthony R. (2013). Analyzing and interpreting data from likert-type scales. Journal of Graduate Medical Education, 5(4), 541-542. doi:10.4300/JGME-5-4-18

The American Institute of Stress. (n.d.). Retrieved from https://www.stress.org/what-is-stress

Vatharkar, P. (2017). Relationship between Role, Conflict and Work Life Balance – Mediation of Job Satisfaction. Imperial Journal of Interdisciplinary Research. Vol-3, Issue-8. Retrieved from http://www.imperialjournals.com/index.php/IJIR/article/view/5489/5281

Ward, M. (2017). A brief history of the 8-hour workday, which changed how Americans work. CNBC.com. Retrieved from https://www.cnbc.com/2017/05/03/how-the-8-hour-workday-changed-how-americans-work.html

Wickens, C. D. (2002). Multiple resources and performance prediction. Theoretical Issues in Ergonomics Science, 3(2), 159-177. doi:10.1080/14639220210123806

Work–life balance. (n.d.). In Wikipedia. Retrieved March 24, 2019, from https://en.wikipedia.org/wiki/Work%E2%80%93life_balance

Zedeck, S., & Mosier, K. L. (1990). Work in the family and employing organization.

American Psychologist, 45(2), 240-251. doi:10.1037/0003-066X.45.2.240

Biographical Statement

Lisa Costan was born in Santa Monica, California. She earned her bachelor's degree from San Diego State University where she majored in Finance. She has many years' work experience in hospitals and medical centers across Southern California and has proficiency in the areas of healthcare finance and accounting. She went on to earn her master's degree in Research Administration from Johns Hopkins University. Lisa successfully leveraged her previous work experience and transitioned to the field of research administration in 2015. During the following years she worked as a Manager of Business Operations at the Saban Research Institute at Children's Hospital in Los Angeles and as a Clinical Finance and Grants Manager at Capricor Therapeutics, a biotechnology company in Beverly Hills, California. Currently, she is working as a Department Research Administrator for the departments of Mathematical Oncology, Biostatistics, and Health Analytics at City of Hope, an NCI-designated cancer center located in Duarte, California. Lisa is passionate about medical research and helping researchers discover innovative drugs, treatments, medical devices and cures to improve the health of individuals.